

ABSTRACT OF THE DISCLOSURE

A gas particle partitioner (GPP) removes particles from an aerosol with high efficiency and with no or minimum changes to the thermodynamic conditions and chemical composition of the gas phase of the aerosol. A permeable grid electrode surrounds a corona wire and separates an interior corona discharge area from an exterior aerosol charging zone. A particle free fluid washes the corona discharge area to minimize any transport of gas components produced by corona discharge to the aerosol. The charged particles in the aerosol are deflected by an electric field in the fractionator to selectively produce a particle free sample stream, which is then separated by a flow splitter from the aerosol.